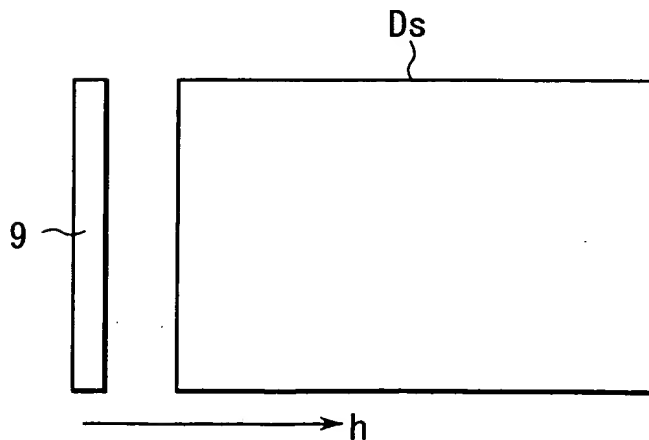


FIG. 1

FIG. 2



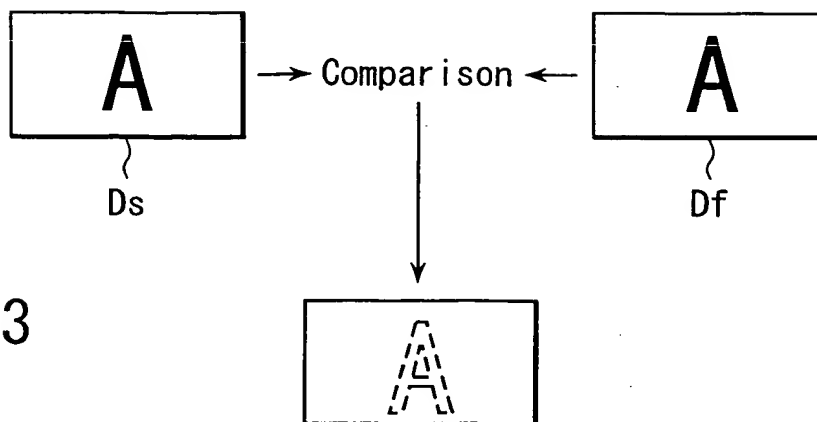


FIG. 3

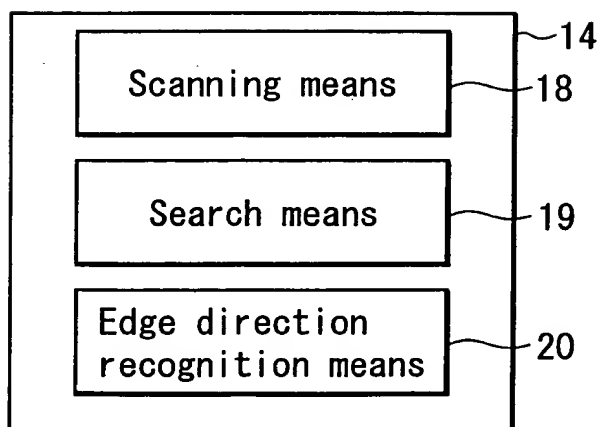


FIG. 4

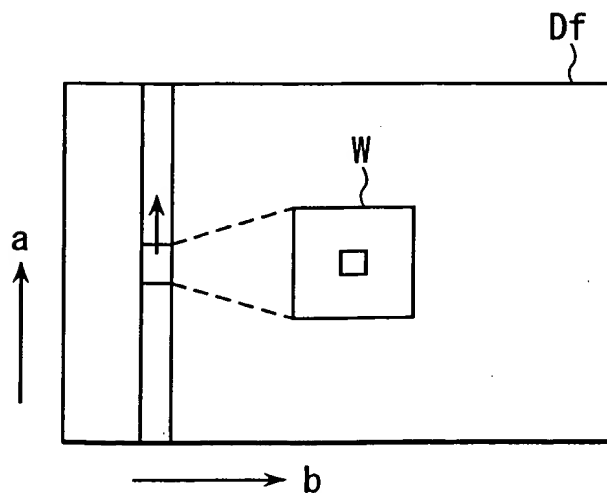


FIG. 5

FIG. 6

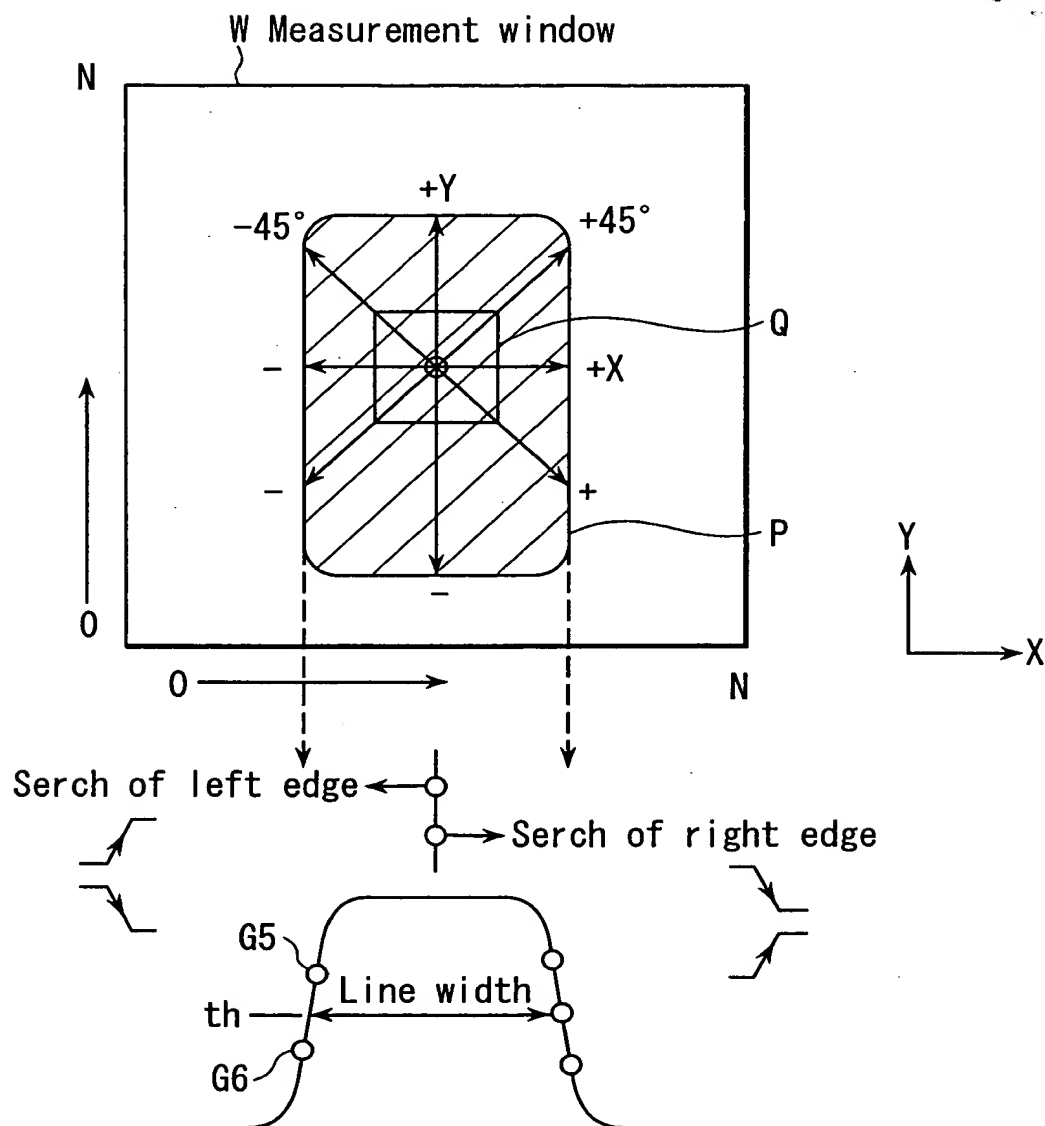


FIG. 6

# Detection of edge direction

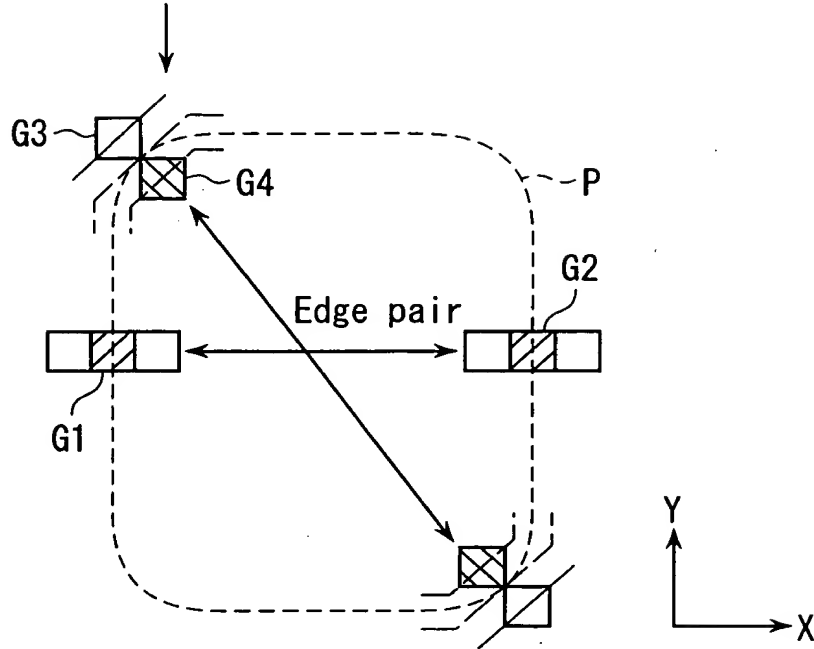
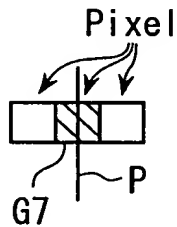


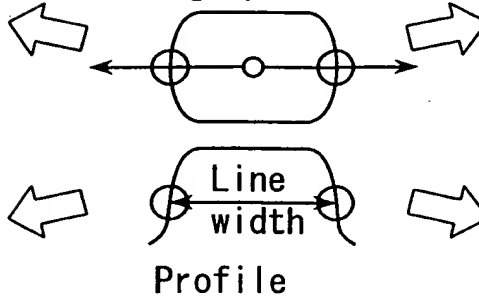
FIG. 7

## Edge (case 1)



When "th" is equal to pixel value  
 Pixel G7

## Design pattern P



## Edge (case 2)

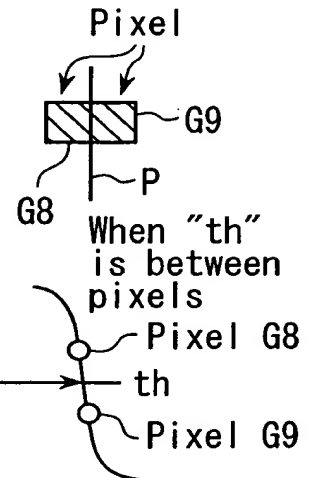


FIG. 8

FIG. 9

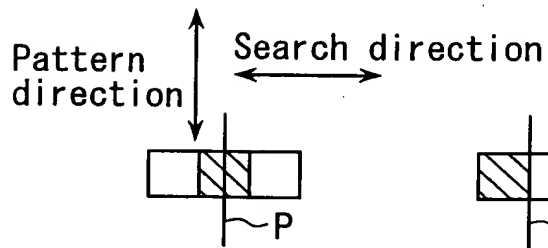
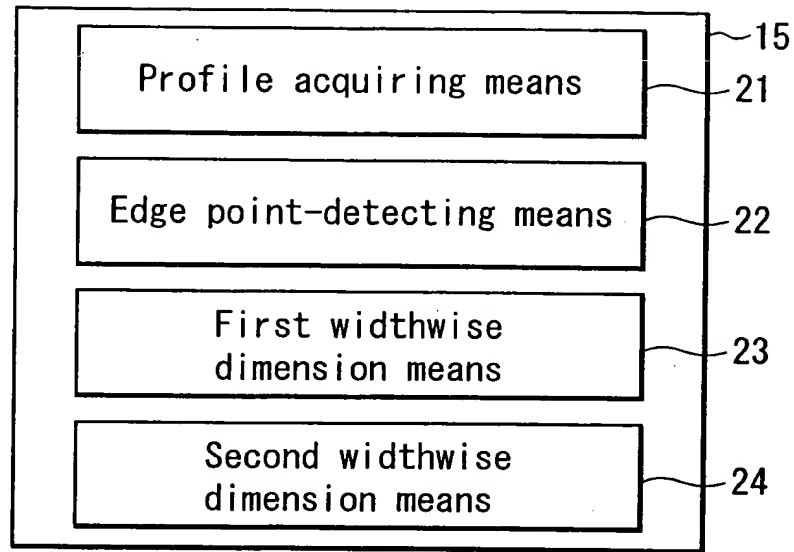


FIG. 10A

FIG. 10B

FIG. 10C

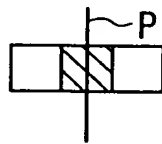


FIG. 11A

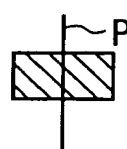


FIG. 11B

d&e&f

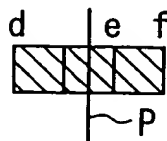


FIG. 12A

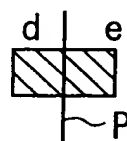


FIG. 12B

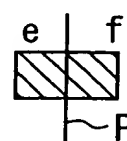


FIG. 12C

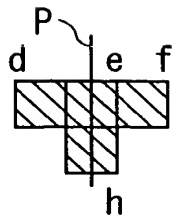


FIG. 13A

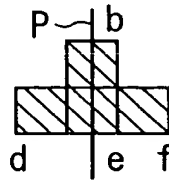


FIG. 13B

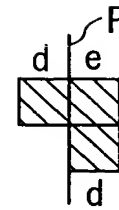


FIG. 13C

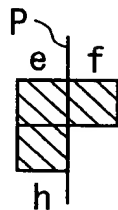


FIG. 13D

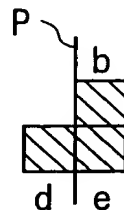


FIG. 13E

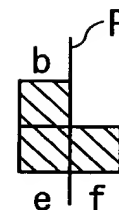


FIG. 13F

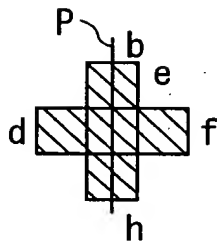


FIG. 14A

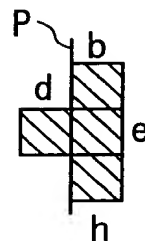


FIG. 14B

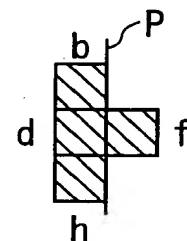


FIG. 14C

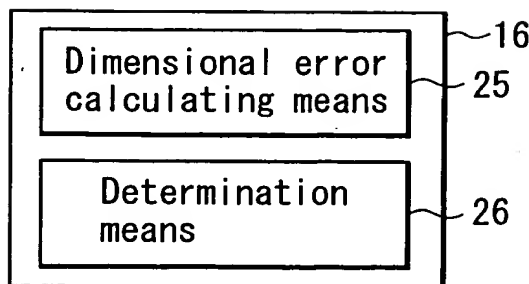


FIG. 15

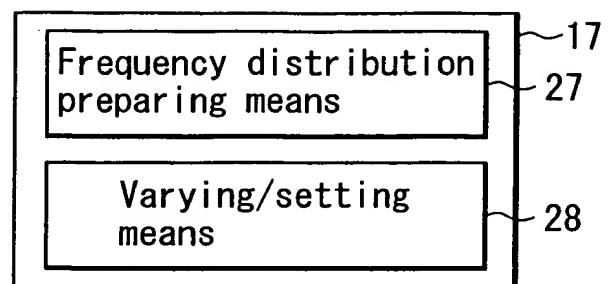


FIG. 16

FIG. 13A

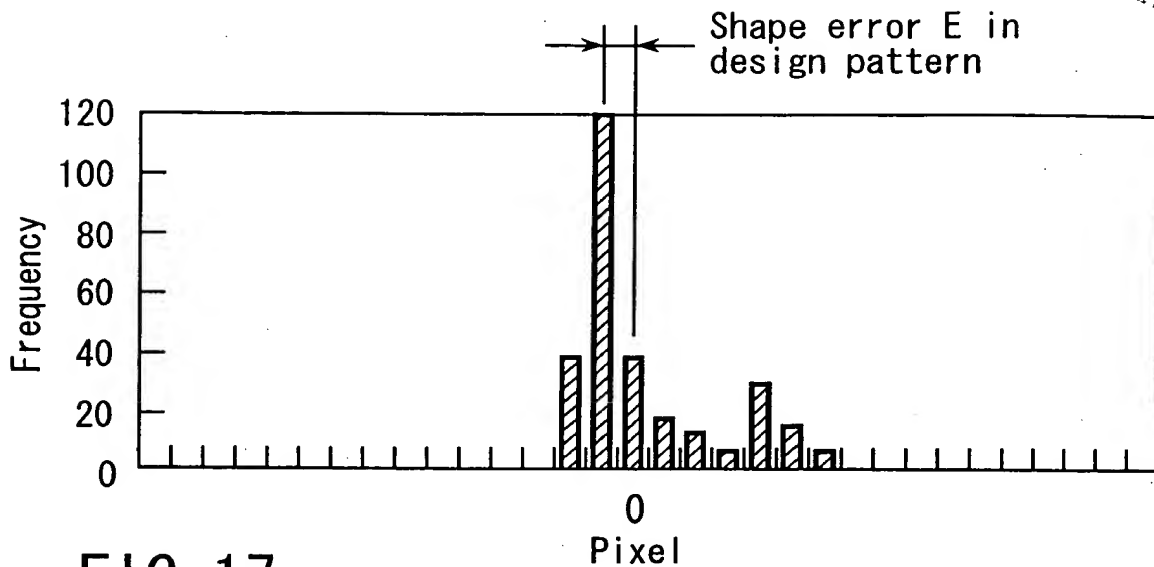


FIG. 17

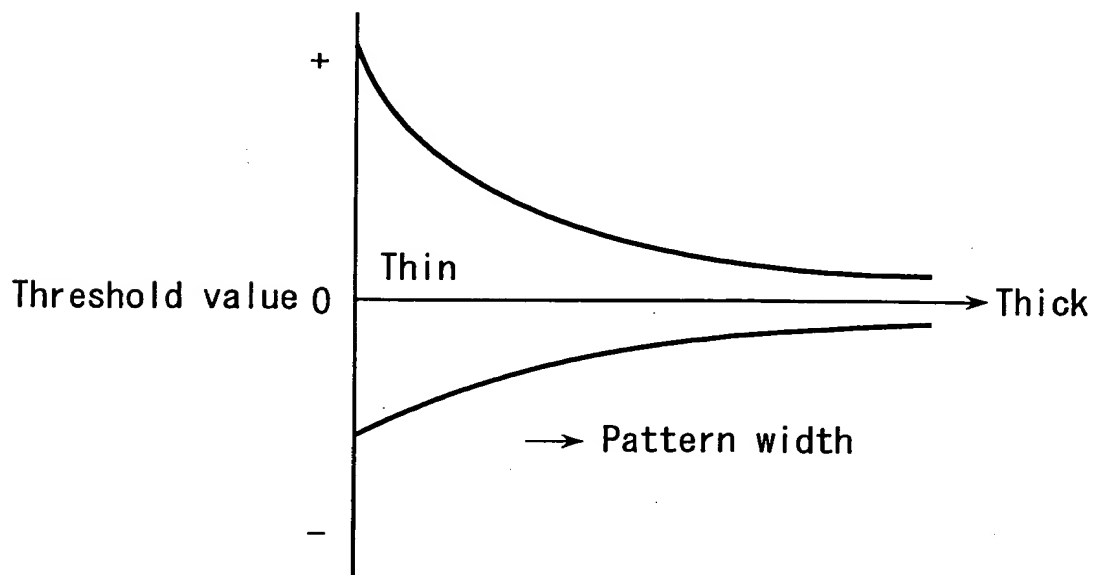


FIG. 18

FIG. 17

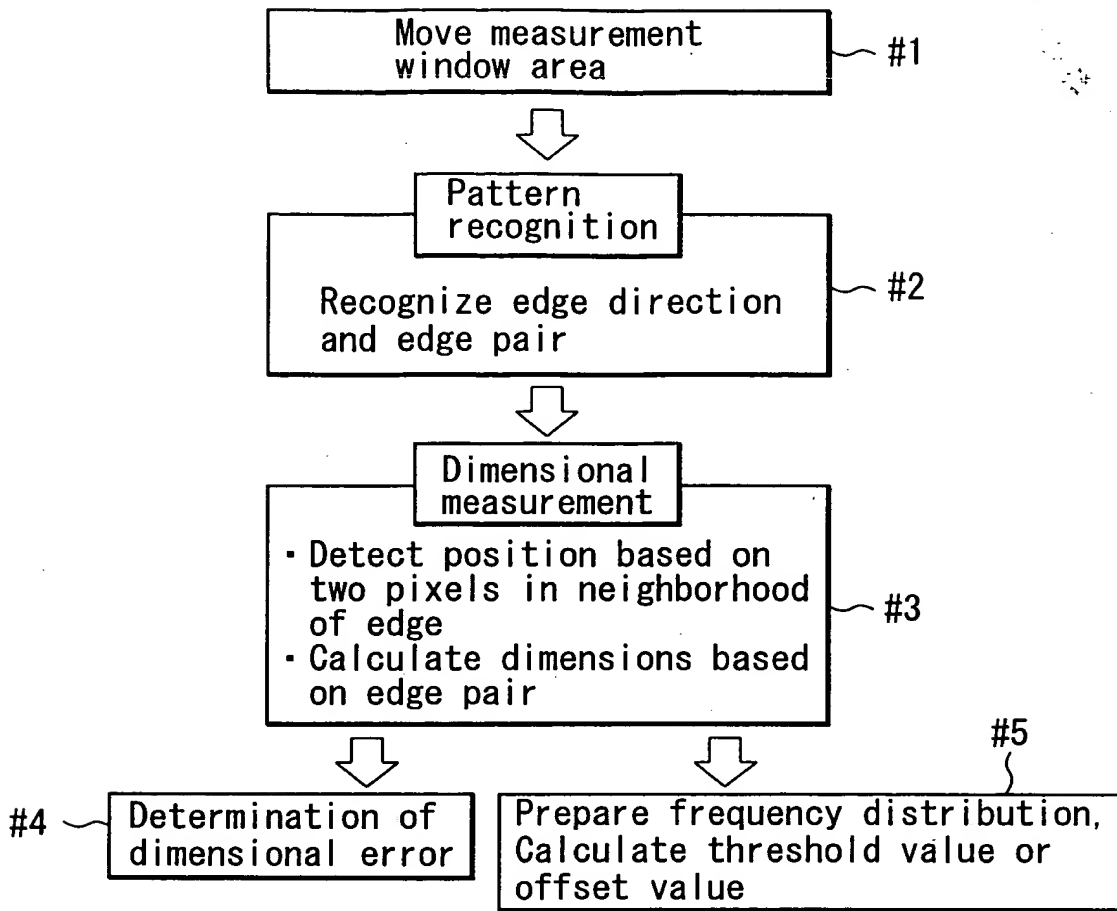


FIG. 19

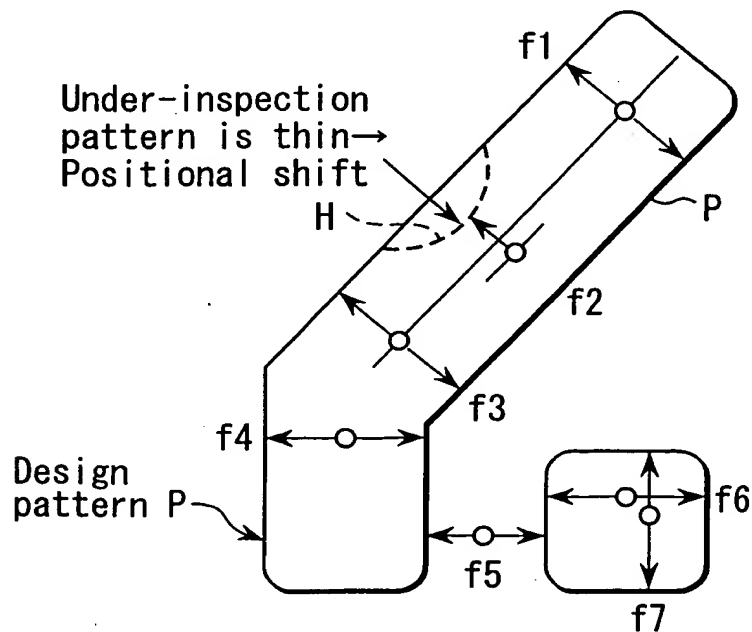


FIG. 20



FIG. 21

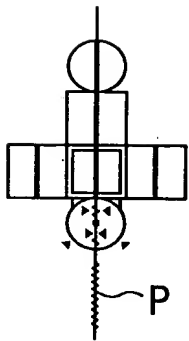
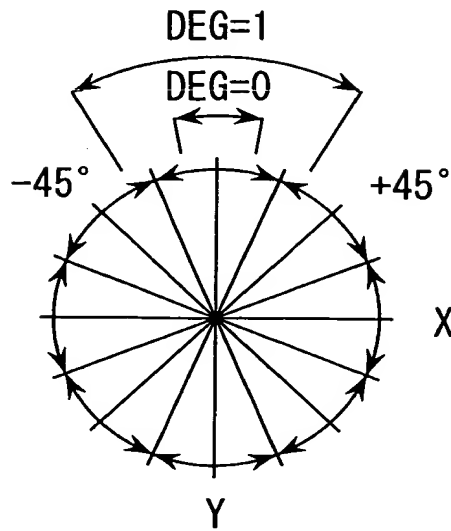


FIG. 22A

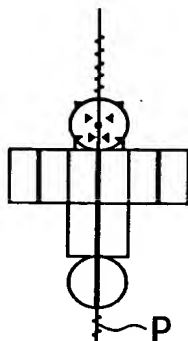


FIG. 22B

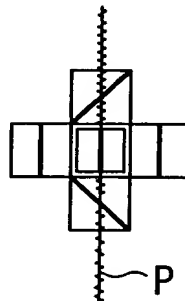


FIG. 22C

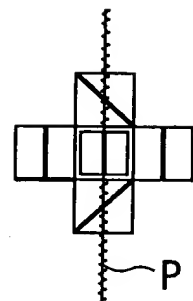


FIG. 22D



X

FIG. 23A



Y

FIG. 23B



+45

FIG. 23C



-45

FIG. 23D



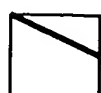
+45 or -45

FIG. 23E



+22.5

FIG. 23F



+67.5

FIG. 23G



-67.5

FIG. 23H



-22.5

FIG. 23I

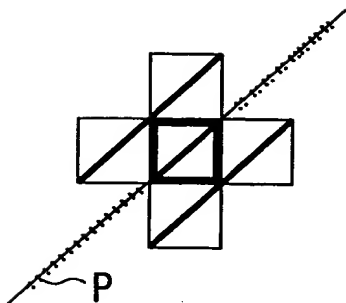


FIG. 24A

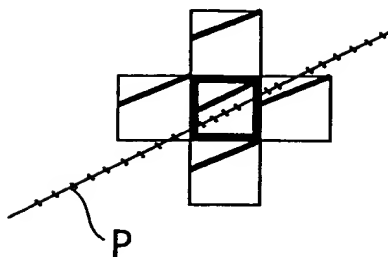


FIG. 24B

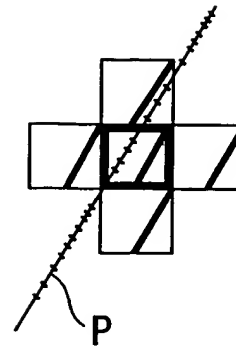


FIG. 24C

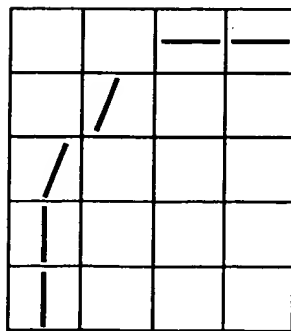


FIG. 25

FIG. 24A